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ILLINOIS NATURAL HISTORY SURVEY

Section of Wildlife Research

Appendix C - Recommendations for Deer Management on O'Hare International Airport
IN

Annual Job Progress Report
Submitted to
ILLINOIS DEPARTMENT OF CONSERVATION
DIVISION OF WILDLIFE RESOURCES
Project Number W-87-R-8
Biology, Ecology, and Management of Deer in the Chicago Metropolitan Area

1 July 1986 - 30 June 1987

by
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28 September 1987

Appendix C. Recommendations for deer removal on O'Hare International Airport.

EXECUTIVE SUMMARY

TITLE: Recommendations for deer management on O'Hare International Airport

PROBLEM

O'Hare International Airport is currently faced with a serious deer management problem. A large number of white-tailed deer (Odocoileus virginianus) live on airport property near active runways. The deer range freely and are sighted especially during spring, on or near active runways, causing imminent danger to transitional aircraft and their passengers. On 17 March 1987, a United Airlines 737 struck a subadult male deer which caused over $114,000.00 in aircraft damage. The presence of deer on O'Hare property is incompatible with airport mission safety. Previous efforts by O'Hare personnel to live-trap deer from 1983 to 1987, were insufficient to limit herd increase. More effective and sustained efforts to remove deer are warranted at this time. The goal of deer removal should be to reduce the probability of a deer-aircraft collision, and other deer-runway incidents, to an acceptable level as defined by O'Hare Airport.

DEER REMOVAL OBJECTIVES

1) To define the maximum number of deer that O'Hare will accept on airport property.

2) To select a deer management strategy that addresses both long and short term needs.

3) To provide economic, logistic, and political support needed to immediately implement deer reduction.

4) To provide regular and effective evaluation of deer numbers and to maintain those numbers at, or below, maximum numbers defined in objective #1.

5) To minimize negative publicity.

MANAGEMENT STRATEGIES

Long term deer management options should be seriously evaluated. Favorable deer habitat near runways is the primary causal factor of large deer numbers on airport property. A secondary factor may be occasional deer immigration from forest preserves east of the airport. Long term management should emphasize reduction of deer habitat, and if immigration is a factor, deer-proof barriers should be erected.

The immediate need to reduce deer numbers prior to the spring of 1988 requires implementation of an effective short term strategy. Methods used to reduce deer numbers have a seemingly inverse relationship between efficiency and public acceptance. Lethal methods, are most efficient, but have lower acceptability to the urban public than live-trapping and translocation. The choice of methodology(ies) should be weighed against the severity of the consequences of a deer-aircraft accident, and the probability of accident occurence. We recommend that deer be removed in the most expeditious manner possible. However, if there is need to offset potential negative public reaction, then live-trapping could be implemented in combination with lethal removal. Live-trapping only, may not achieve sufficient reduction in deer numbers.

AGENCY RESPONSIBILITIES

The landowner, O'Hare International Airport--City of Chicago, controls deer habitat on airport property and thus has primary economic responsibility for deer removal. Deer removal must be in accord with state wildlife regulations enforced by the

Illinois Department of Conservation (IDOC). Principal IDOC contact is Mr. Forrest Loomis, Forest Game Supervisor.

We suggest that O'Hare Airport personnel take active participation in deer removal. Chicago Animal Control should be enlisted for technical, logistical, and personnel support.

The state, through the IDOC and the Illinois Natural History Survey Urban Deer Study (INHS), will provide information, counsel, and training in deer removal methods. INHS personnel (Dr. J. Witham and Mr. J. Jones) will be available to demonstrate live-capture, handling, and transport of deer, for 2-3 days in early November 1987. A 2-3 day demonstration of lethal removal of deer by shooting over pre-baited sites, and the processing of carcasses for donation to charitable organizations, will also be available between November 1987 and January 1988.

CONTRACTUAL REMOVAL OF DEER BY IDOC/INHS

In this case, if requested by O'Hare Airport, the IDOC/INHS would be available to conduct short term reduction of deer numbers during the fall of 1987 and winter of 1988, under contract. The removals would be considered as a pilot study by the INHS Urban Deer Research Program. A draft budget for contractual removals is provided in Appendix E.

INTRODUCTION

O'Hare International Airport is currently faced with a significant deer problem. A minimum of 37 white-tailed deer (Odocoileus virginanus) were sighted in wooded/shrub habitat adjacent to active runways in March 1987. Numerous incidents of deer on, or near, runways were reported during spring 1987. An 80-lb male fawn, struck by a landing United Airlines 737 jet on 17 March 1987, caused aircraft damage in excess of $114,000.00. Fawns produced during the summer of 1987 have further increased accident potential.

Efforts by O'Hare personnel over the years 1983 - 1987 to live-trap deer have not successfully limited herd increase. A sustained and comprehensive approach to reduce and control deer numbers should be implemented as soon as possible. The primary need is to select and implement a management strategy that will effectively reduce herd size. A secondary, but real need, is to minimize or buffer negative social reaction to deer removal.

The Illinois Natural History Survey (INHS) has investigated urban deer problems and control in northeastern Illinois since 1983. In this paper we provide O'Hare Airport Authority with information with which to select and implement a comprehensive deer management program. Specific objectives of this paper are to:

- Describe habitat, herd origin, and deer behavior that contributes to airport deer problems
- Review historic and recent deer control activities
- List possible deer control methods
- Suggest goals and alternative strategies for herd reduction, carcass disposition, and media contact

- Describe state involvement in airport deer control activities

DEER HABITAT ON AIRPORT AND ADJACENT PROPERTIES

Although highways, parking lots, terminals, and runways dominate O'Hare Airport, considerable peripheral airport property has remained undeveloped. Three areas have woodlots that provide marginal to excellent cover for deer (Fig. 1).

Largest numbers of deer occur west of Runway 14R/32L and north of Runway 4R. Until 1984, the 650-ha site was a diverse mixture of old fields and swamp/marsh interspersed among relatively small patches of open canopy hardwoods. A tree nursery maintained for the Chicago Park District is located on the north end of this area. Between 1984 and 1986, about 250 ha of this area (Fig. 1; Area 1B) was developed for air cargo facilities. Construction activities and loss of habitat undoubtably caused deer to concentrate north of St. John's Cemetery (Fig. 1; Area 1B).

Relatively few deer have been observed on the other 2 areas. One is a sparsely wooded 70-ha site in the northwest corner of O'Hare property immediately northwest of the airline maintenance building complex (Fig. 1; Area 2). The second is a 180-ha woodlot/shrub/old field north of Runways 14L and 22R (Fig. 1; Area 3). A second Chicago Park District tree nursery is located in the latter area.

Aerial photographs of O'Hare and adjacent properties were reviewed for 1949, 1963, 1975, and 1985. The sequence of photographs shows successional changes in vegetation that have

increased quality and quantity of deer habitat on peripheral airport property (Fig. 2). The agriculture influenced landscape of 1949 had by 1985 evolved into a more structurally diverse mixture of vegetative types which has favored establishment and increase of deer.

Conversely, during the same period, most private property immediately north, west, and south of O'Hare was developed for residential, commercial, and industrial land uses. However, east of the airport, separated by a 1.3 to 2.0 km strip of commercial development, are county forest preserves which sustain sizable numbers of deer (Fig. 3).

DEER HERD ORIGIN AND MOVEMENTS

The origin of the O'Hare deer herd is speculative. It is likely that deer from Des Plaines River forests formed the nucleus of the O'Hare deer herd. Subsequent intensive development of private properties adjacent to O'Hare has formed partial barriers to deer ingress and egress. Deer immigration, possible 40 years ago, seems unlikely today. Commerical development and highways on O'Hare's eastern boundary now form at least a partial, if not formidable, barrier to dispersing deer. We believe some immigration from the Cook County Forest Preserves (CCFPD) is possible, but infrequent. However, dispersal may be more common during years with heavy floods or deep snowfall.

Seasonality of deer incidents on O'Hare during March to early June may be influenced by foraging and pre-partum behavior. In spring deer tend to forage in open areas away from woodlots (i.e., first sites to "green up" are mowed areas near runways).

Also, during late spring, pregnant females become aggressive toward former offspring, and this behavior promotes wandering and dispersal among these subadults. Deer are most frequently observed near runways during spring. Two deer-aircraft collisions have occurred in March (1982 and 1987).

MANAGEMENT OF DEER ON O'HARE AIRPORT

Historic deer management activities

Deer management at O'Hare prior to 1980 was poorly documented. Some illegal shooting of deer occurred between the 1960's and early 1980's. The airport perimeter fence had periodically been cut and deer entrails were occasionally found. Local residents and O'Hare employees may have performed illegal "deer control" during this period.

First official reduction of deer numbers was precipitated by a deer-jet collision (American Airlines DC-10) on 31 March 1982 (Iker 1983). Following this accident, the U. S. Fish and Wildlife Service (USFWS), IDOC, and O'Hare coordinated a series of deer drives during April-May 1982 in which a minimum of 14 deer were shot by IDOC and USFWS personnel (Garrow, IDOC, unpub. notes). The drives were discontinued because few deer were being taken, deer had become extremely wary, and because of the increased potential for deer being driven onto runways. Officials chose not to implement a USFWS recommendation to construct a 12-foot high deer-proof fence on the east and northeast perimeters of O'Hare.

Options for deer removal were reviewed by Federal Aviation Administration, IDOC, O'Hare, and USFWS personnel on 20 January

1983 (Appendix A). Capture, handling, and transport methodologies were discussed with an IDOC recommendation to live capture deer with box traps being implemented (Appendix B). Two deer were captured and transported to the Des Plaines Conservation area during the winter of 1983, one which died of capture related injuries (Gebhardt, O'Hare, pers. commun.; Garrow, IDOC, unpub. notes). O'Hare personnel continued to live-trap deer from 1984 through 1987. No records were kept of any deer trapped, although no deer were captured during the winters of 1985-86 and 1986-87. A retrospective estimate of total deer live-captured between 1983 and 1987 was 5 (Gebhart, O'Hare, pers. commun.).

The most recent deer drives were in spring 1983 and 1984. Five deer were shot by IDOC and USFWS employees on 5 May 1983. Drives by IDOC and USFWS personnel on 8-9 May 1984 were unsuccessful. INHS records of deer killed on those drives may be incomplete. IDOC personnel have stated that a total of 22-23 deer were shot during drives-- 4-5 more deer than INHS has documented. If IDOC personnel are correct, the 4-5 deer were shot on drives prior to 5 May 1983.

The INHS Urban Deer Study was initiated in July 1983. The research is sponsored from funds administered by the IDOC (Pittman Robertson, F.A. Project W-87-R). The INHS research program has functioned as an on-site liason between IDOC and O'Hare Airport since 1984.

In 1984, INHS and O'Hare discussed using the airport as a site for research on herd reduction, but the idea was not acted on. However, O'Hare and INHS jointly counted deer by helicopter

(Chicago Fire Department Bell Jet Ranger) during the winters of 1984, 1985, and 1986 (Appendix C). O'Hare personnel counted 5 deer during a fall 1986 flight (Gebhardt, O'Hare, pers. commun.). O'Hare officials were not able to obtain a city helicopter from which to count deer during the winter of 1987.

Recent deer management activities

Deer were sighted repeatedly near, and on, active runways during early spring in 1987. On 17 March, a United 737 airliner struck and killed an 80-lb subadult male deer on Runway 14R that caused repair damage in excess of $100,000.00. INHS counted 43 deer (43 deer observed; 6 possible duplicate sightings) on a 31 March helicopter (Il. Dep. Trans. Bell Long Ranger) census (Appendix D).

Deer control needs were discussed by O'Hare, INHS, and Chicago Animal Control (CAC) personnel on 30 April 1987. There was agreement that an attempt should be made to reduce deer numbers prior to fawning in June.

Chicago Animal Control attempted to tranquilize deer by remote chemical injection during a 2-week-period in May. Five deer were darted, but none was successfully live-captured. Heavy vegetation precluded tracking of deer that ran out of view before tranquilizer induction. These efforts were discontinued and reviewed on 15 May. Chicago Animal Control indicated that tranquilizing deer by remote chemical injection was not effective under extant conditions. Recommendations by CAC were to cut grass adjacent to runways and to build a corral trap.

Grass near runways was cut by O'Hare maintenance personnel.

O'Hare and CAC personnel constructed a corral trap from 6 INHS drive nets. Although deer sign was observed near the trap gate, no deer were captured and the trap was dismantled in July.

TECHNIQUES TO REDUCE DEER CONFLICTS

In reviewing methods used to exclude deer, or reduce deer herd size, it is important not to become "lost" in a search for the ideal technique that will painlessly solve all problems. There is no such panacea. Depending on the circumstances, some removal techniques are more efficient than others. However, no single method will operate ideally under all conditions. Success will be largely determined by the skill and commitment of individuals that support and implement control programs. The following review was adapted from Rongstad and McCabe (1984) and Matschke et al. (1984).

Habitat manipulation: Presence of a resident deer herd on O'Hare property is possible only because suitable habitat exists. Quality of deer habitat has become more favorable over the last 36 years. A program to eradicate deer habitat, particularly shrubs and trees that provide cover, would eliminate deer herds from O'Hare. An on-site example of this approach was construction and development of the air cargo facility, which reduced primary deer habitat on O'Hare by 28%.

Exclusion/barriers: Deer movements and/or access to favorable habitat could be reduced by strategic placement of barriers. No fence is completely reliable, however, properly maintained fences will exclude most deer. Deer-proof fences are based on 2 principles: height and adversive conditioning.

Vertical woven wire fences-- Minimum of 8' high, smooth wire strands stretched above fence extend effective height, deer may gain access through breaks in the fence or by gaps beneath fence.

Electric fence-- Based on adversive conditioning, electric shock induces future avoidance, most effective technique employs 5-6 strands of high tensile smooth wire with "New

Zealand style" high-output fence charger

Live capture: Most effective with naive deer or when deer are nutritionally stressed during winter. Deer baited into trap sites. Becomes less effective over time and as density decreases. Deer can be translocated or euthanized. Labor intensive.

Remote chemical injection-- Requires close proximity (20-25 m maximum) and ability to relocate deer that travel distances during interim between chemical injection and induction.

Box and net capture methods:

Box traps-- Numerous styles, portable, generally produce single captures, can be left unattended and checked daily, O'Hare has operated 3 Stephenson style box traps since 1983.

Corral traps-- Stationary enclosures with net or wood walls, multiple captures, gate closed manually or by trip-wire, deer in trap must be "recaptured" either by remote chemical injection or physical restraint.

Drive net-- Tangle net, does not require bait, deer driven into net by helicopter or drive line, only first few animals are captured, used during any season, requires large crew, INHS has six 100' drive nets, INHS had poor success with drive nets in northwest Cook County.

Drop net-- Suspended above bait site, blasting cap discharged to drop net onto deer, requires large crew, potential for capturing large number of deer, preferred deer capture technique in Colorado, Arizona, Texas, and some other states.

Rocket net-- Prebaited site, rockets discharged from remote postion, rockets pull net over deer, requires large crew, used by INHS to capture over 200 deer, captures 1-6 deer per discharge.

Lethal removal: A collection of methods that cause deer mortality. More efficient than live capture, particularly when herd density is low.

Bait shooting-- Prebaited site, elevated blind, controlled, shotgun or rifle, minimum personnel, used by INHS in northwest Cook County.

Deer drive shooting-- Unarmed drivers form line and push deer out of cover toward shooters, requires large crew, most effective when deer density is high, IDOC shot 22-23 deer on O'Hare property in 1982-83 with this method.

Spot light shooting-- "Jack light," lights used to located

deer near roads at night, deer shot from vehicle, horizontal bullet trajectory is potentially dangerous, used by INHS in northwest Cook County.

Archery or crossbow-- Used at bait site or near active trail, less efficient that rifle or shotgun, higher wounding losses, discrete, no audible discharge.

CARCASS AND ANIMAL DISPOSITION

A secondary consideration in deer removal is disposition of the animals or carcasses. The public has substantial interest in disposition of deer once they are captured or killed. It is prudent to select disposal options that provide optimal use. Methods of carcass disposal must be listed on the IDOC Nuisance Deer Removal Permits.

Translocate live deer-- Requires humane and safe handling of deer. Some mortality must be expected during handling and transport. Labor intensive. Permission must be received from landowner and IDOC to release deer. Favored by public.

Live capture and euthanize-- Deer are killed once they are captured in nets or traps. Deer meat cannot be given to charities or for animal consumption if euthanized with chemicals.

Human consumption-- Carcasses of properly butchered deer can be donated to charitable organizations as specified by the IDOC. Currently, carcass must be processed by a state licensed meat packing facility. Processing cost per field dressed carcass is about $50.00. Packaged venison donated to Chicago Food Depository for distribution to the indigent of Chicago.

Animal consumption-- Large zoos will not take deer carcasses because of potential for disease transmission. Many smaller zoo's and animal rehabilition centers will accept venison to feed captive raptors and other carnivores.

Scientific uses-- Samples and measurements can be collected from deer carcasses to determine condition, productivity, and other useful data. Most data can be collected without sacrificing quality of carcass for human or animal consumption. Samples needed are small and the bulk of the carcass must still be disposed of, however.

Bury-- Efficient. Wasteful. Low acceptability.

Cremate-- Efficient. Wasteful. Low acceptability.

RECOMMENDATIONS FOR DEER HERD REDUCTION AND CONTROL

The presence of deer near active airport runways is a serious problem that needs to be addressed immediately. Herd size is unknown, although, a minimum of 37 deer was counted in March 1987, prior to parturition. Fawns produced last summer should elevate herd size in fall 1987 to a minimum of 50-60 deer. It is essential that most, if not all, of these deer be removed prior to emergence of spring vegetation in March 1988. Removal will be more efficient if the winter is severe. O'Hare and Chicago Animal Control should recognize that deer removal, of the magnitude needed to significantly reduce a herd of the size on O'Hare, will require a major commitment on the part of both organizations. Only O'Hare and CAC officials can identify their own priorities. However, it should be noted that:

- Human safety is the primary concern
- Actions should effectively reduce potential for deer-aircraft incidents
- Actions should not increase probability of secondary hazards to human safety
- Actions should minimize adverse public controversy, although possible adverse public reaction does not preclude use of efficient methods

Problem statement:

The mission of O'Hare International Airport is to provide safe and efficient air transportation facilities and services. Undeveloped airport property near active runways provide habitat that supports relatively large numbers of white-tailed deer. These deer range freely and are observed near active runways causing immediate danger to transitional aircraft. Presence of deer on O'Hare property is

incompatible with airport mission safety. Live trapping by O'Hare over 4 years has been ineffective. More effective methods of control are warranted.

Program goal:

To reduce probability of deer-aircraft collisions and other deer-runway incidents to an acceptable level as defined by the O'Hare International Airport Authority.

Objectives:

- To define the maximum number of deer that O'Hare/CAC will accept on airport property. (The maximum number will be used as a decision rule above which reduction will be implemented).
- To select a deer management strategy from long and short term options that recognizes the need for periodic, perhaps annual control efforts.
- To provide the economic, logistic, and political support needed to implement deer management during autumn 1987.
- To reduce deer numbers to a level below the defined decision rule number before 1 April 1988.
- To provide regular and effective evaluations of deer numbers, and to maintain numbers at or below the specified decision rule indefinitely.
- To minimize negative publicity and intra-agency controversy.

Decision rule

Selection of a critical abundance number (decision rule) provides a direct statement of commitment to herd reduction and subsequent control. There are 4 general levels of deer abundance to consider. Subjectively chosen herd sizes are listed for purpose of establishing a specific decision rule level for O'Hare Airport that can be directly related to removals needed for reducing the estimated 50-60 animals now present.

- <u>No maximum population level</u>

  Decision rule not to remove deer

  No effort, or, token effort

- o **Moderate to high residual population**

  Decision rule- remove all deer in excess of 20 animals

  Effort--to remove a limited number of deer and stop when efficiency begins to decline

- o **Low residual population**

  Decision rule- remove deer in excess of 10 animals

  Effort--to remove maximum number of deer with acceptance that a limited number cannot be removed without excessive effort and the reality of occasional immigrations

- o **No residual population**

  Decision rule- remove all deer

  Effort- to remove maximum number of deer until no deer remain

Long term options

As a long term option, we believe that O'Hare Airport Authority should seriously consider major reduction and even elimination of deer habitat from their peripheral properties. Quality of deer habitat near active runways has improved for over 35 years. From the standpoint of reduction of deer incidents near runways, it would be desirable to reverse the process of vegetation development through habitat manipulations, or indirectly through construction. A second long term option involves the erection of barriers (i.e., deer-proof fence) to exclude deer from runways, reduce immigration from nearby forest preserves, and isolate favorable deer habitat. Both options should significantly decrease frequency of deer-runway conflicts. However, neither method will address the immediate need to reduce

deer numbers by 1 April 1988. Therefore, a short-term deer removal option should be scheduled for implementation during fall and winter of 1987-1988.

It also should be recognized that long term options may never be implemented. Both suggested long term options are expensive, require continual maintenance, and each involves ramifications that extend beyond the immediate deer problem. At minimum, a commitment should be made to develop and maintain an effective short term strategy--with full understanding that short term strategies are temporal actions that require long term attention.

Short term strategies

Among deer removal techniques, a seemingly inverse relationship exists between efficiency and public acceptability. The most efficient methods--lethal removals--are less acceptable to the public than live capture. Conversely, live capture techniques are more acceptable but much less efficient. To help visualize these relationships we have ranked removal methods by efficiency (Fig. 4) and public acceptance (Fig. 5). Efficiency relationships are assessments of the ability of INHS/IDOC personnel to implement these techniques under site specific conditions that exist on O'Hare Airport. These assessments are based on extensive local research elsewhere in the Chicago metropolitan area.

A strategy for animal or carcass disposition should also be considered (Fig. 6). The public is interested not only in how an animal is removed, but what happens to the animal or carcass subsequent to removal. There is a major difference between

translocation of live deer and carcass utilization, with the former much favored over the latter. However, when carcasses are obtained, it is desirable to ensure their optimal use. Human consumption--specifically donation of processed venison to charitable organizations that feed the indigent--helps buffer negative public responses to lethal removals. Scientific uses, (tissue samples, physical measurements, reproductive tract examininations, condition evaluations etc.) can provide valuable data and should be viewed as a asset that can help optimize carcass usage and thus help rationalize lethal removal.

List of strategies

I. Do nothing. Accept consequences of high deer numbers

II. Long term options

A. Habitat manipulation-- Costly to effect and maintain but possible to accomplish. Would require additional evaluation beyond scope of this paper. INHS and IDOC would provide evaluation if O'Hare expressed serious interest in this long term option.

B. Exclusion barriers-- Also, costly to effect and would require annual maintenance but possible to accomplish. Would require additional evaluation beyond scope of this paper. INHS and IDOC would provide evaluation if O'Hare demonstrated serious interest in this method of control.

III. Short term options

A. Maximum efficiency-- Achieved by selection of techniques high on Fig. 6. The most efficient removal technique is shooting over bait. Most efficient disposal would be to bury or cremate carcasses. Consequence of maximum efficiency is potentially greater public opposition and vulnerability if controversy occurs. Must be accomplished with relative discretion.

FALL- SHOOT OVER BAIT SITES (BURY CARCASSES)
WINTER- SHOOT OVER BAIT SITES (BURY CARCASSES)

B. Maximum positive public image-- Achieved through live trapping and translocation. As some deer are removed, and numbers are reduced, efficiency will substantially

decrease. Live trapping requires a high manpower commitment and expertise in handling and transport. Many deer will not be trapped leaving a substantial residual herd.

FALL- LIVE TRAP (TRANSPORT AND RELEASE)
WINTER- LIVE TRAP (TRANSPORT AND RELEASE)

C. Balanced strategy-- Achieved by a combination of techniques. Emphasize advantages of each method to offset or buffer negative consequences.

Attempts at reduction during fall should be made with lower efficiency method. The greatest number of deer will be available in fall and will include naive animals that are susceptible to live trapping. Deer are in peak condition during fall, which will reduce handling and transport mortalities. The primary value of trapping may be public relations.

Secondary reduction follows at start of winter with more efficient lethal techniques to remove wary deer and achieve a lower density. Maximize use of carcasses by having meat processed for human and animal consumption; collect data for scientific or management purposes. Animals in poor physical condition should be buried and cremated.

FALL- LIVE TRAP (TRANSPORT AND RELEASE)
WINTER- SHOOT OVER BAIT SITES (DONATE MEAT TO CHARITY; ZOO ANIMAL CONSUMPTION; SCIENTIFIC USES)

Program evaluation

Regular counts of deer from a helicopter are essential for evaluation of herd size. Flights should be conducted between November-March when deciduous plants are defoliated, preferably when the ground is snow covered. Minimum snow depth of 4-6 inches provides excellent contrast for visibility. However, on areas of limited size, such as O'Hare, deer can be counted fairly accurately without snow cover by flying at heights just above tree level. Pilots experienced with O'Hare tower communications are absolutely essential. Only experienced observers should be used and experienced pilots are desirable.

Suggestions for media contact

Deer removal is potentially controversial and organizations should carefully formulate strategies for working with media and public. The first reaction to potential controversy is to avoid contact with media with hope that actions will not become issues. This practice is standard and there is substantial wisdom in this approach. However, an agency is immediately placed in a reactive or a compromised position if actions are independently "discovered" because circumstances are perceived as being "covered up". It would be naive to assume that deer removal can take place on O'Hare without some accidental release of information. To reduce this possibility, we believe that a low key statement should be released to the press well in advance of deer removals. The statement should acknowledge that:

- The resident deer herd has increased in size because of 2 consecutive mild winters.
- "Incidents" involving deer and aircraft have occurred.
- There is concern for human saftey and action is required.
- Options are being evaluated in consultation with city and state wildlife agencies.
- Live trapping and translocation will be initiated during the fall.

Furthermore, we suggest that a news release be written before final decisions on specific techniques or dates of implementation, and that:

- Specific reporters be targeted and provided with advance copy.
- A single person should be selected to answer all questions from the media. That person must be well informed on the problem, on deer, and on the control program.

- All involved parties should refer questions to the designated spokesperson.

- A file should be maintained that includes press releases, written documentation of all contacts with media, and copies of resultant articles, as well as all pertinent data and program related information.

- A post-activity summary be prepared, filed, and distributed only if specific requests are received.

Role of state agencies in urban deer management

The landowner controls the habitat and thus has primary responsibility for deer damage abatement. The role of the state is to facilitate the needs of the landowner by providing information, counsel, and training in deer removal methods and damage abatement. If direct reduction is an option approved by the state, but cannot be performed by the landowner, the state may choose to implement herd reduction under contract from the landowner.

To this end, the state has offered the following services to O'Hare International Airport through the IDOC sponsored INHS Urban Deer Study:

- **Information and consultation**

  Mr. Forrest Loomis
  Il. Dep. of Conservation
  (309) 374-2492

  Dr. James H. Witham
  Il. Natural History Survey
  (312) 289-7620

- **IDOC Nuisance Deer removal permit** (Loomis, IDOC)

- **Written management recommendations** (Witham, INHS)

- **Training O'Hare/CAC personnel** (Witham, INHS)

  a) Live trapping/handling/transport
  (2-3 days early November 87; Witham, INHS)

  b) Bait shooting/carcass preparation
  (2-3 days early January 1988; Witham, INHS)

- **Provide cost estimate for state personnel to perform herd reduction** (Witham, INHS; Appendix E).

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Appendix A. List of personnel that attended O'Hare Airport deer removal meeting on 20 January 1983.

DEPARTMENT OF AVIATION

MEETING ROSTER

SUBJECT: Wildlife Containment O'Hare

DATE: 9AM JAN 20, 1983

TIME:

NAME	TITLE	AFFILIATION/PHONE #
William T. Cornett	Deputy Commissioner	Department of Aviation 686-2297
Jane Murphy	Coordinator of Procedures	Dept. of Aviation 686-2661
Forrest Loomis Supervisor	Forest Wildlife Program	Ill. Dept. of Conservation
Charles A Quick	Airport Certification Safety Insp.	FAA-
Ronald D Ogden	Sr. Wildlife Biologist Assistant Wildlife	U.S. Fish & Wildlife Service
Raymond W Marshall	District Wildlife Manager	IL Dept. of Conservation
James R. Langbein	Regional Fish & Wildlife Biologist	Ill. Dept. of Conservation
Richard O Winters	Regional State Botanist	US Fish & Wildlife Service
Scott P Garrow	District Wildlife Manager	Ill. Dept. of Conservation
Russell R. Hebbeler	Aviation Safety Director	City of Chgo. - Dept. of Aviation -
PETER COPPOLA	GENERAL MANAGER OPS	DEPT. OF AVIATION
PAUL McGRAW	ASS'T CHIEF SUPERVISOR	DEPT. AVIATION

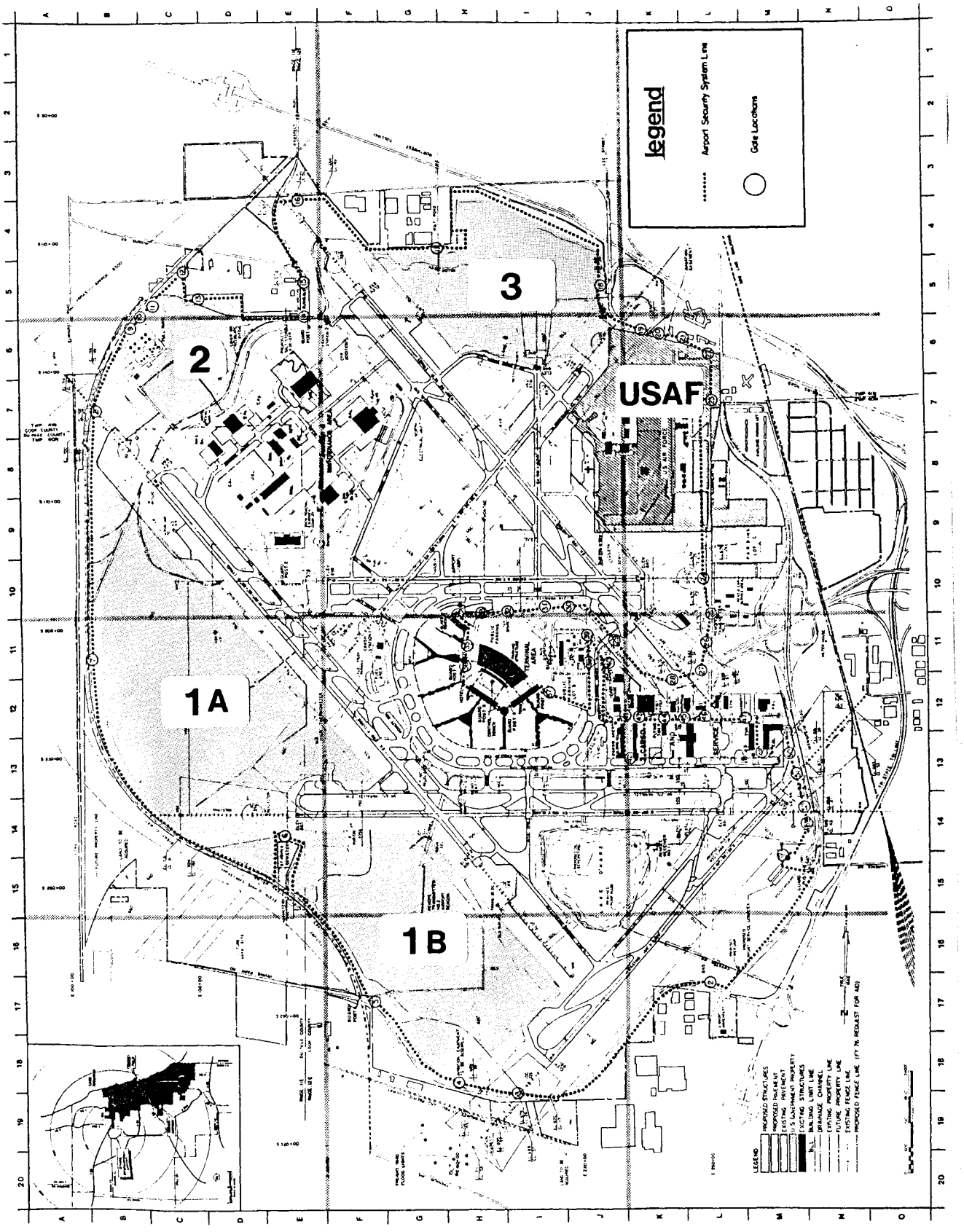


Fig. 1. Locations of deer habitat on O'Hare International Airport (shaded and labeled 1A, 1B, 2, and 3). Habitat on Area 1B was removed by construction of air cargo facility. Deer are concentrated on Area 1A.

Appendix B. Illinois Department of Conservation recommendations for live-trapping deer on O'Hare Airport, 9 March 1983.

Illinois Department of Conservation
life and land together

605 WM. G. STRATTON BUILDING • 400 SOUTH SPRING STREET • SPRINGFIELD 62706
CHICAGO OFFICE – ROOM 100, 160 NO. LASALLE 60601
David Kenney, Director • James C. Helfrich, Assistant Director

March 9, 1983

Mr. William Corbett
Deputy Commissioner
O'Hare International Airport
P.O. Box 66142
Chicago, Illinois 60666

Dear Mr. Corbett:

As a result of our meeting in early February regarding problem white-tailed deer on O'Hare Airport, shown below are the steps taken, and needed information enabling you to trap and transport deer from the airport to the Des Plaines Conservation Area, Will County:

1. Aerial survey was conducted on the 7,000 acre airport, and deer were located.

2. Bait, in the form of shelled corn and salt blocks, was placed in selected areas to keep deer off of runways and to get them using an area where traps will eventually be placed.

3. Plans for deer traps were explained, construction was explained to carpenters. Catching nets were ordered.

4. Finished traps were placed over bait sites which deer were using. Catching nets were delivered.

5. Set traps, capture deer, and transport them to Des Plaines Area. Contact either Ray Marshalla or Jim Langbein prior to transporting and releasing deer. Their addresses are as follows:

Ray Marshalla	Jim Langbein
Wildlife Manager	Fish and Wildlife Supervisor
Des Plaines Conservation Area	Silver Springs State Park
R.R. 3, Box 167	R.R. 1, Box 318
Wilmington, IL 60481	Yorkville, IL 60560
815/476-7622 Office	312/553-0859 Office
815/744-2265 Home	815/675-5546 Home

If you have any problems, just contact me either at home or at my office in Monmouth.

6. Upon trapping a deer, an injection of 1/4 cc to 1/2 cc of Rompon, a tranquilizer, will be administered to the hip of the deer. A blindfold should also be utilized while transporting deer.

This pretty well covers the process of moving unwanted deer. If you have any fatalities, I recommend disposing of the animals through a rendering plant, since these animals have been injected with Rompon. I doubt that they will be edible. If death occurs prior to injection, the cause of death will determine whether the animal may be utilized for food. In any rate, contact either myself or one of the biologists for further instruction.

If you have any questions on any of the above, please feel free to contact me at any time. Thank you for your cooperation in this important matter.

Sincerely,

Forrest D. Loomis

Forrest D. Loomis, Manager
Forest Wildlife Program

cc: Tranquilli
Miller
Kube
Langbein
Marshalla
Gebhardt
Coppola
Closson
Paladino
Garrow

Appendix C. Aerial counts of deer on airport property made by the Illinois Natural History Survey and O'Hare during winters of 1984, 1985, and 1986.

M E M O R A N D U M

TO: Forest Loomis, Illinois Dep. of Conservation (IDOC)
Russell Gebhardt, O'Hare Airport (OHARE)
Glen Sanderson, Illinois Natural History Survey (INHS)

FROM: Jim Witham, INHS

DATE: 9 Mar 1984

SUBJECT: O'Hare Deer Survey

SUMMARY:

Search Time

Start- 1020 Finish- 1049 Total- 29 minutes

Aircraft: Bell Jet Ranger, Chicago Fire Dep (CFD)

Observers: Pilot (CFD)
Navigator (CFD)
J. Witham (INHS)
Rocky (OHARE)

Conditions: 1-3" snow depth, drifted, some bare ground

Counts

Location	No. Deer	Other wildlife
W/SW of runways 14R/32L	8	1 red fox
NW of runways 14R/14L	0	1 cottontail
E of runway 14L, N of 18	1	1 gray fox
Runway 14L		1 red-tailed hawk
Totals	9	4

NARRATIVE:

The O'Hare Dep. of Aviation, in cooperation with the INHS, conducted a 29 min helicopter flight to count deer on O'Hare property, 9 March 1984. Light snowfall (1-3") fell on 8 March. Snow condition for visibility was marginal to adequate. Three deer groups (3, 5, 1) were counted totaling 9 individuals. The locations of deer on 8-9 March, indicated by observations, tracks and beds, were centered near coordinates IJK/1 (Chicago O'Hare International Airport, Official coordinate map, Dep. of Aviation, 1978). Notably, tracks/beds were heaviest in wooded areas adjacent to nursery stock plantings. One deer was observed in a wooded area east of runway 14L and N of runway 18. Nine deer is a minimum count. There is a high probability that some deer were not counted, although the total number of deer on O'Hare probably does not greatly exceed the minimum count.

M E M O R A N D U M

TO: Mr. Forrest Loomis, Illinois Dep. of Conservation (IDOC)
Mr. Russell Gebhardt, O'Hare Airport (OHARE)
Dr. Glen Sanderson, Illinois Natural History Survey (INHS)

FROM: Dr. Jim Witham, INHS Urban Deer Study

DATE: 7 January 1985

SUBJECT: O'Hare Deer Survey

SUMMARY

Search Time
Start- 1048 Finish- 1115 Total- 27 minutes

Aircraft Bell Jet Ranger, Chicago Fire Dep (CFD)

Observers Pilot (CFD)
Navigator (CFD)
J. Witham (INHS)
Rocky (OHARE)

Conditions about 6" snow depth, some melting and drifting,
(7-8" snow deposited during 1 Jan 85 storm)

Counts

Location	No. Deer	Other wildlife
W/SW of runways 14R/32L	8	fox den near cemetery
NW of runways 14R/14L	0	1 red-tailed hawk
E of runway 14L, N of 18	0	0
Runway 14L	0	0
Totals	8	

Narrative

The INHS/OHARE conducted a 27 min helicopter flight to count deer on O'Hare property, 7 January 1985. Substantial snowfall, 7-8", fell during a 1 January 1985 storm. Snow condition for visibility was good-very good. Three deer groups (4, 1, 3) were counted totaling 8 individuals. The locations of deer on 7 January 1985, indicated by observations, tracks and beds, were centered near coordinates IJK/1 (Chicago O'Hare International Airport, Official coordinate map, Dep of Aviation, 1978). The location and total number of deer observed during this survey were similar to observations made on the previous, 9 March 1985, INHS/OHARE helicopter survey.

M E M O R A N D U M

TO: Mr. Forrest Loomis, Illinois Dep. of Conservation (IDOC)
Mr. Russell Gebhardt, O'Hare Aifport (OHARE)
Dr. Glen Sanderson, Illinois Natural History Survey (INHS)

FROM: Dr. Jim Witham, INHS Urban Deer Study

DATE: 22 Jan 86

SUBJECT: O'Hare Deer Survey- 15 January 1986

SUMMARY

Search Time
Start- 1013 Finish- 1055 Total- 42 minutes

Aircraft Bell Jet Ranger, Chicago Fire Dep. (CFD)

Observers Pilot (CFD)
Navigator (CFD)
J. Witham (INHS)
Rocky (OHARE)

Conditions poor observability due to large patches of bare ground, snow 1-2" drifts,

Counts

Location	No. Deer	Other wildlife
W/SW of runways 14R/32L	12	1 red-tailed hawk
NW of runways 14R/14L	1	1 red fox
E of runway 14L, N of 18	1	1 red fox
Totals	14 deer	

Narrative

The INHS/OHARE conducted a 42 minute helicopter flight to count deer on O'Hare property, 15 January 1986. Conditions for observing deer were poor; snow depth was 1-2", patchy, drifted, with large areas of exposed ground. Twelve deer were concentrated NW of "Blood Alley Road" (coordinates IJK/1 on Chicago O'Hare International Airport, Official coordinate map, Dep. of Aviation, 1978). These animals were in smaller groups (size 1-4 individuals) that changed composition when disturbed by the helicopter One deer was sighted in each of the 2 remaining woodlots.

Construction W/SW of runways 14R/32L has reduced the size of this woodlot by at least one-half (coordinates A-G/1-5, Chicago O'Hare International Airport, Official coordinate map, Dep. of Aviation, 1978).

Appendix D. Aerial count of deer on O'Hare Airport made by Illinois Natural History Survey on 31 March 1987.

M E M O R A N D U M

TO Mr. Forrest Loomis, Illinois Dep. of Conservation (IDOC)
Mr. Russell Gebhardt, O'Hare Airport (OHARE)
Dr. Glen Sanderson, Illinois Natural History Survey (INHS)

FROM Dr. Jim Witham, INHS Urban Deer Study

DATE 31 Mar 87

SUBJECT Aerial count of deer on O'Hare property- 30 Mar 87

Search Time
Start- 10.58 Finish- 12.14 Total- 76 minutes

Aircraft Bell Long Ranger, Illinois Dep. of Transportation (IDOT)

Observers Pilot (IDOT)
J. H. Witham (INHS)
J. M. Jones (INHS)

Conditions extremely poor, no snow, clear

Counts

Location	No. Deer
W of runways 14R/32L	41 (includes 6 possible duplicates)
Between runways 14R/14L	0
E of runway 14L, N of runway 18	2
Totals	43 deer

Narrative

The INHS conducted a 76 minute helicopter flight to count deer on O'Hare property, 30 March 1987. Conditions were extremely poor for deer observations; no snow cover was present. We compensated for a lack of snow by flying < 150' agl. It is likely that some deer on O'Hare property were not observed. Deer were concentrated west of runway 14R/32L, north of St. John's Cemetery. Group sizes varied from 1-7 deer. Largest groups were near the nursery. Care was taken to avoid duplicate counts by repeatedly relocating groups previously sighted to verify their locations. A maximum of 6 of the 43 deer observed could have been duplicated counts. Two deer were sighted N of runway 18.

Construction has eliminated the woodlot SE of St. John Cemetery (approximately 25-33% of total wooded area on OHARE. Construction also was observed in the woodlot between runways 14R/14L.

Other wildlife observed during flight: Canada geese (numerous), cottontail rabbits (3), domestic cat (1), crows (numerous, one on nest), common flicker (4), great blue heron (2), Kestrel (1), mallards (numerous), pheasant (1), red fox (1), red-tailed hawk (2), unknown raptors (3), and woodchuck (1).

Appendix E. Conditions and draft budget estimate for deer removal on O'Hare International Airport by Illinois Natural History Survey.

Conditions:

1) That deer herd reduction be considered a cooperative effort among O'Hare Airport, Chicago Animal Control, Illinois Department of Conservation, and the Illinois Natural History Survey.

2) That O'Hare and Chicago Animal Control personnel:

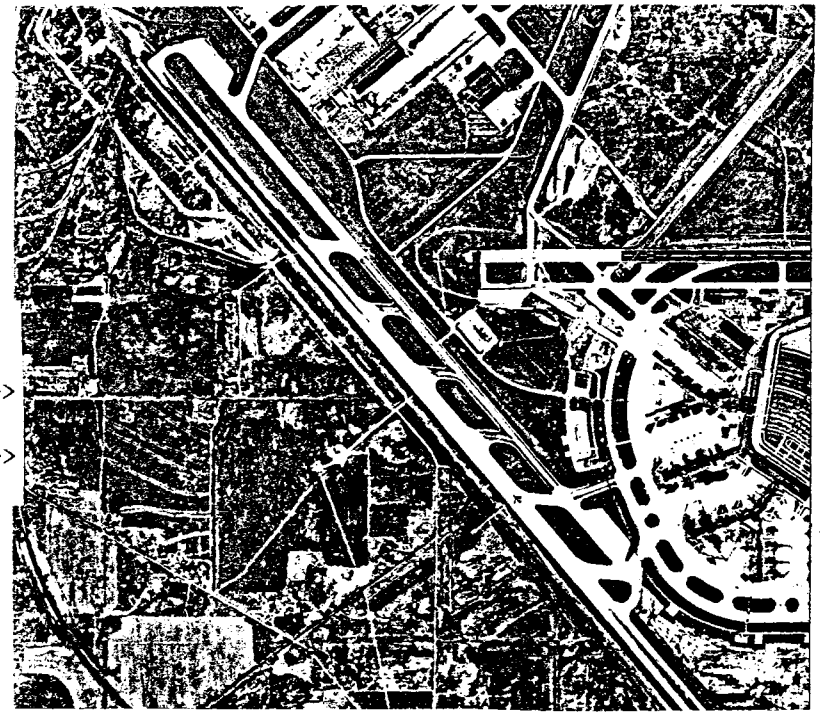
   a) Maintain bait sites daily
   b) Help restrain and transport deer that are live captured
   c) Receive demonstrations and training in all techniques

3) Removal period 15 October 1987 - 1 April 1988

4) Under the conditions stated above, INHS could perform cooperative deer removal on O'Hare International Airport with the following compensation:

Personnel	
Assistant field technician (5 months @ $1,500/month)	$ 7,500.00
(Fringe benefits @ 0.15 of wages)	1,125.00
Transportation	
Vehicle rental, gas, and repair	3,000.00
Helicopter rental (3 flights @ $500./flight)	1,500.00
Supplies	
Drop net and supplies	1,500.00
Other	500.00
Contractual Services	
Carcass processing (20 carcasses @ $50.00/carcass)	1,000.00
Subtotal	16,125.00
Overhead (0.20)	3,225.00
Total Contract	$ 19,350.00

Aerial photograph of Area 1A in 1949. Patterns of agriculture dominated landscape are evident. ------->



Chicago Parks tree nursery ------->

Aerial photograph of Area 1B in 1985. Landscape pattern shows heterogeneous vegetation. ------->

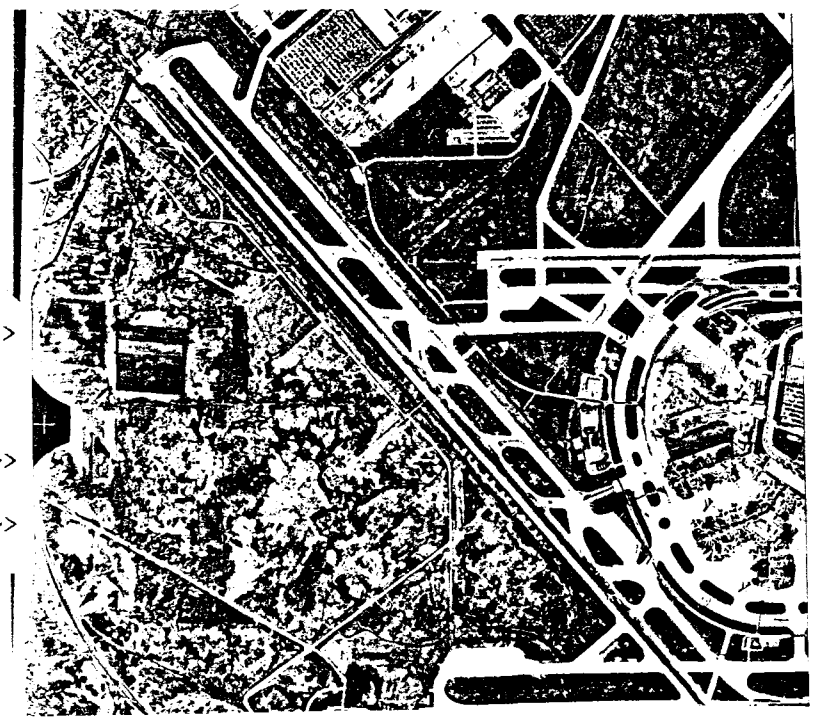


Fig. 2. Comparison of vegetation patterns near O'Hare runway 14R for 1949 and 1985. Increase in mixed vegetation in 1985 is an indication of improved deer habitat.

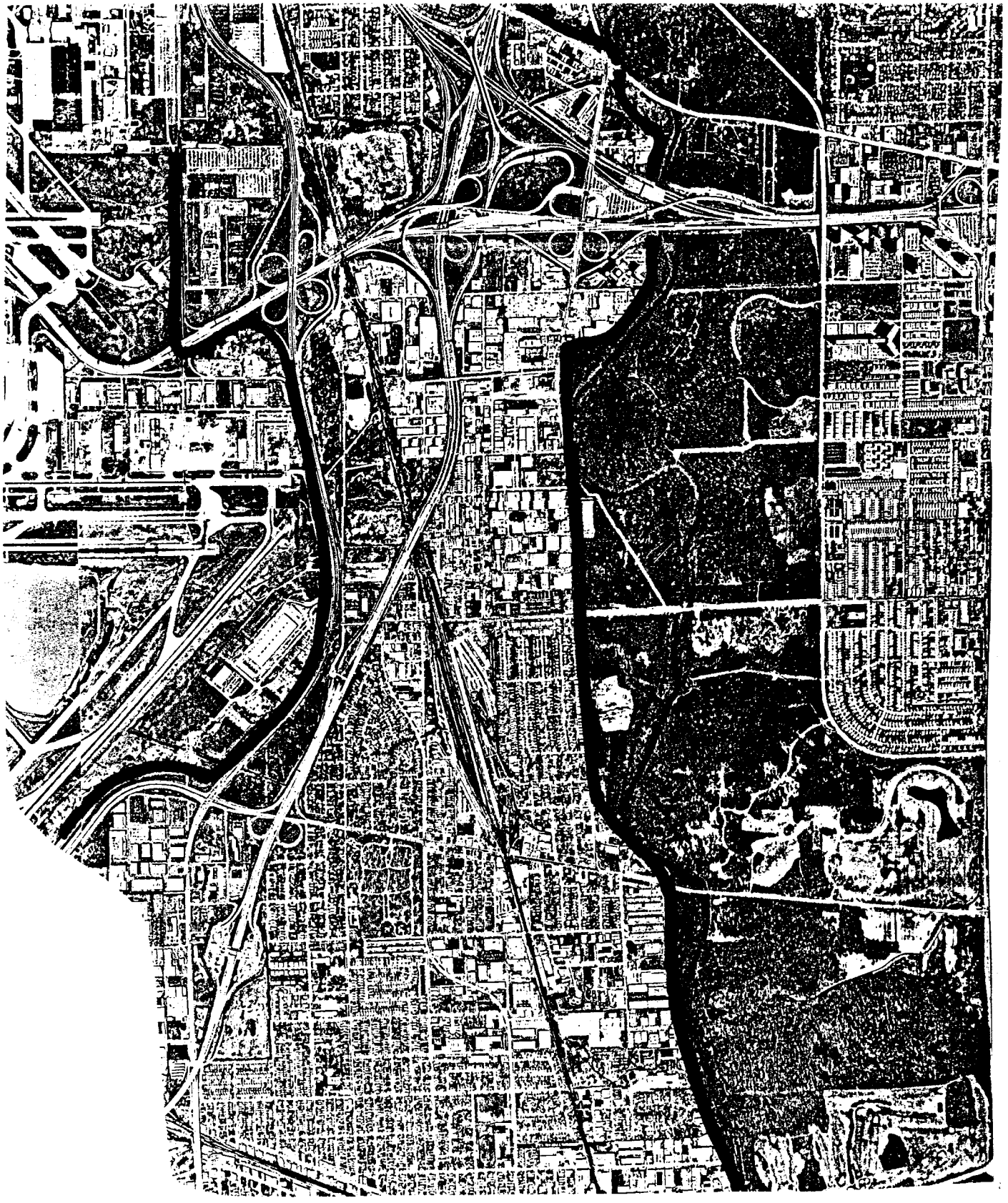


Fig. 3. Aerial photograph of eastern boundary of O'Hare Airport taken in 1985 (runways visible in upper left corner). A 1.3-2.0 km strip of commerical development separates O'Hare from county forest preserves.

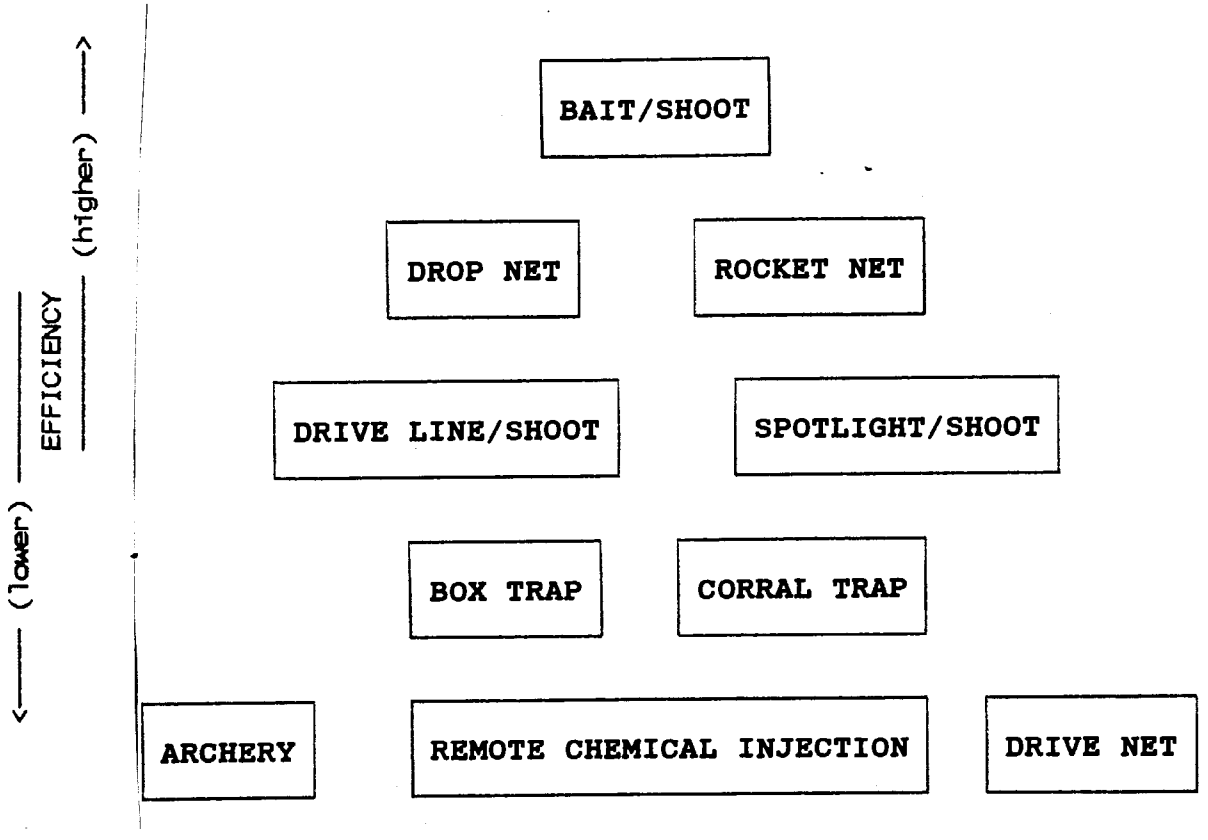


Fig. 4. Deer removal techniques ranked by efficiency. Specific level based on subjective assessment by ability of INHS/IDOC personnel to implement these techniques on O'Hare International Airport.

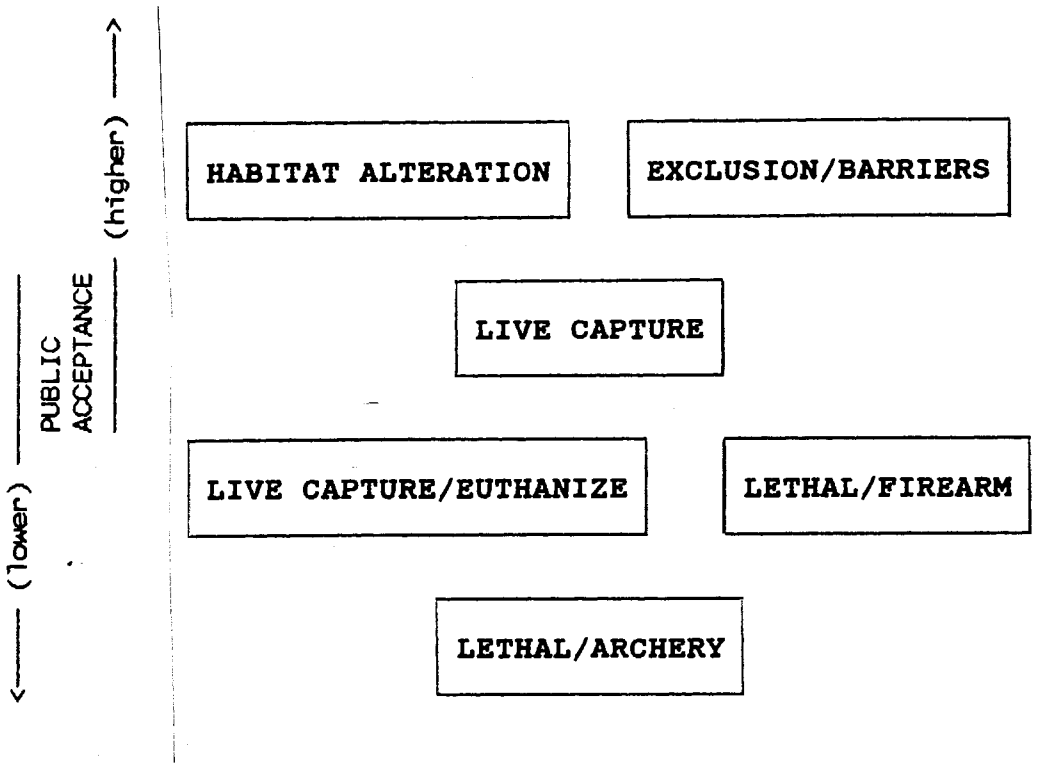


Fig. 5. Deer removal ranked by public acceptance. Specific level based on subjective assessment made by INHS personnel.

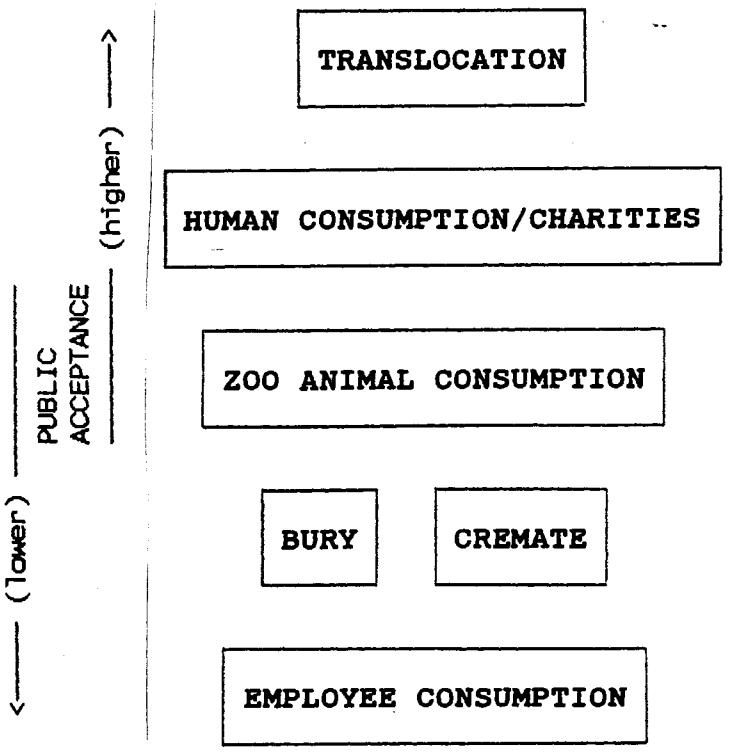


Fig. 6. Methods of disposition of deer or carcasses ranked by public acceptance. Specific level based on subjective assessment made by INHS personnel.